REMARKS

Claims 1-5, 7-19, 21, and 22 are pending, with claims 1, 8, and 14 being independent. Claims 14-19, 21, and 22 are under consideration as being directed to elected Invention III. Claims 1-5 and 7 are withdrawn from consideration as being directed to non-elected Invention I, and claims 8-14 are withdrawn from consideration as being directed to non-elected Invention II.

Claim Rejections Under 35 USC 112

Claims 14-19, 21, and 22 were rejected under 35 USC 112, first paragraph, as failing to comply with the written description requirement because the Examiner is of the opinion that claims 14 and 22 contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. This rejection is respectfully traversed.

In explaining the rejection of independent claim 14, the Examiner states as follows:

> There is no support in claim 14 for "a flat frame supporting the first flat surface" and "a flat cover mask support the second flat surface" in light of "a first flat surface extending over an entire area of the flat mask, and a second flat surface extending over the entire area of the flat mask". The first and second surfaces refer to the *entire* flat surface of the mask. According to Figs. 3 and 6A-6C, the frame and cover mask do not cover the entire flat surface of the mask. For the purposes of this examination, it will be interpreted that the frame and cover mask at least covers parts of the mask.

Thus, the Examiner has interpreted claim 14 as if it recited "a flat frame supporting the entire first flat surface of the flat mask" and "a flat cover mask supporting the entire second flat surface of the flat mask," and thus has improperly read limitations into the claim. Although claim 14 recites that "the flat mask [has] a first flat surface extending over an entire area of the flat mask, and a second flat surface extending over the entire area of the flat mask," it is submitted that this does not require claim 14 to be interpreted in the manner in which it has been interpreted by the Examiner. For example, FIG. 3 of the present application shows a flat mask 110 having a first flat surface extending over an entire area of the flat mask 110, and a second flat surface extending over the entire area of the flat mask 110. A flat frame 110 supports the

first flat surface of the mask 110. A cover mask 130 supports the second flat surface of the mask 110. Accordingly, it is submitted that claim 14 does in fact comply with the written description requirement of 35 USC 112, first paragraph.

In explaining the rejection of dependent claim 22, the Examiner states as follows:

> The specification does not fully support the limitation "wherein the flat frame and the flat cover mask *are the only elements that touch the flat mask*" (claim 22, emphasis added by Examiner). For example, the mask, cover mask, and frame can be joined together using an adhesive agent such as welding [0045]. The adhesive agent necessarily contacts the mask. Therefore, the frame and cover mask are not the only elements that touch the mask because the adhesive agent would come into contact with the mask as well.

However, paragraph [0045] of the specification referred to by the Examiner states that "[w]hen considering a change in accuracy after the joining, laser welding is preferable," and that "[w]elding dots 140 of FIG. 3 denote dots used in dot welding using a laser." It is submitted that when the mask 110, the frame 120, and the cover mask 130 shown in FIG. 3 are joined together using laser dot welding, the heat of the laser melts the mask 110, the frame 120, and the cover mask 130 together in the dots, such that the frame 120 and the cover mask 130 are the only elements that touch the mask 110. Accordingly, it is submitted that at least FIG. 3 and paragraph [0045] of the specification provide support for the feature "wherein the flat frame and the flat cover mask are the only elements that touch the flat mask" recited in claim 22.

For at least the foregoing reasons, it is respectfully requested that the rejection of claims 14-19, 21, and 22 (i.e., claims 14 and 22 discussed above and claims under 35 USC 112, first paragraph, as failing to comply with the written description requirement be withdrawn.

Claim Rejections Under 35 USC 103

Rejection 1

Claims 14-17 and 21 were rejected under 35 USC 103(a) as being unpatentable over Utsugi et al. (Utsugi) (U.S. Patent Application Publication No. 2002/0150674) in view of Ito et al. (Ito) (U.S. Patent No. 5,652,067) and Martin (U.S. Patent No. 4,676,193). This is respectfully traversed.

Claim 14

It is submitted that Utsugi, Ito, and Martin do not disclose or suggest "a flat mask comprising a flat thin plate in which a predetermined pattern of apertures is formed, the flat mask having a first flat surface extending over an entire area of the flat mask, and a second flat surface extending over the entire area of the flat mask, the second flat surface being separated from the first flat surface by a thickness of the mask; a flat frame supporting the first flat surface of the flat mask so that the flat mask is tensed and the first flat surface remains flat; and a flat cover mask supporting the second flat surface of the flat mask so that the second flat surface remains flat" as recited in independent claim 14.

In explaining the rejection of claim 14, the Examiner states as follows in pertinent part:

> Martin discloses a mask assembly that is suitable for vacuum vapor deposition (column 1, lines 13-21 and column 2, lines 54-59). Fig. 7 shows a mask assembly 32 comprising: a mask 40', a frame 34, and a cover mask 88. The frame and cover mask sandwich the mask. . . .
>
> The mask in Fig. 7 of Martin does not have a flat surface extending over an entire area of the mask. In particular, a raised boss member 98 of the cover mask defines a clamping member counterbore [94] (col. 10, lines 47-50) and causes the mask to lie in two separate planes. The clamping member counterbore seems to hold the entire mask assembly together, which would in turn provide the means for affixing the mask. One of ordinary skill in the art would realize that the elimination of the raised boss member and clamping member counterbore would result in the loss of such functions. However, Martin teaches in a different embodiment that welding can be used to join different parts of the mask assembly and that welding can be a means for affixing the mask (col. 8, lines 63-68; col. 10, lines 22-32). In view of this teaching, one of ordinary skill in the art would recognize that the step of welding would supplement the loss of the function of the raised boss member and clamping member counterbore. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have omitted the raised boss member and clamping member [counterbore] (i.e., such that the mask would have a flat surface extending over an entire area of the mask) and to have welded the mask assembly together after clamping the mask of Fig. 7 with a reasonable expectation of success because Martin teaches that welding is an operable

> method of joining parts of the mask assembly and affixing the mask with the desired tension.

The Examiner states that "[o]ne of ordinary skill in the art would realize that the elimination of the raised boss member and clamping member counterbore would result in the loss of such functions." However, the Examiner has not identified anything whatsoever in Martin or elsewhere in the prior art that would have motivated one of ordinary skill in the art to eliminate the raised boss member 98 and clamping member counterbore 94 in FIG. 7 of Martin as proposed by the Examiner. Rather, it is submitted that the only suggestion that this be done is contained in the applicant's disclosure, which the Examiner is prohibited from relying on as a source for the motivation required to support a rejection under 35 USC 103(a) by MPEP 2143 (see MPEP page 2100-126) which provides as follows (emphasis by underlining added):

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.
>
> The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. (Citation omitted.)

FIGS. 1-6 of Martin disclose a first embodiment of a stabilized mask assembly 32, and FIG. 7 of Martin discloses a second embodiment of the stabilized mask assembly 32. Martin discloses that these two embodiments are alternate embodiments in column 21, lines 18-33, of Martin. It is not seen where anything whatsoever in Martin or elsewhere in the prior art discloses or suggests that features of one of these embodiments can be used in the other of these embodiments as proposed by the Examiner.

It appears that the Examiner has proposed that the embodiment in FIG. 7 of Martin be modified as follows. Take the clamping member 88 (corresponding to the cover mask in claim 14) and grind off the raised boss member 98 so that the clamping member 88 has a flat surface. Place the mask foil 40' (corresponding to the mask in claim 14) on the mask supporting frame 34 (corresponding to the frame in claim 14). Apply tension to the mask foil 40'. Place the modified clamping member 88 without the raised boss member 98 and having the flat surface on

top of the metal foil 40' so that the metal foil 40' under tension is sandwiched between the mask supporting frame 34 and the modified clamping member 88. Finally, weld the metal foil 40' under tension, the mask supporting frame 34, and the modified clamping member 88 together. However, it is submitted that there is simply no suggestion whatsoever in Martin or elsewhere in the prior art to make these extensive modifications to the embodiment in FIG. 7 of Martin, particularly with respect to grinding off the raised boss member 98 of the clamping member 88 so that the clamping member 88 has a flat surface. Nor has the Examiner even alleged that such a suggestion to make this modification exists. Rather, the Examiner has merely alleged that it would have obvious to make this modification.

Furthermore, it is submitted that the proposed modification of the embodiment in FIG. 7 of Martin proposed by the Examiner does not provide "a flat frame supporting the first flat surface of the flat mask so that the flat mask is tensed and the first flat surface remains flat" as recited in claim 14 because the mask supporting frame 34 has a raised ridge 38 as shown in FIGS. 1 and 7 of Martin and this is not "a flat frame" as recited in claim 14. The Examiner has not alleged that it would have been obvious to make Martin's mask supporting frame 34 flat by removing the raised ridge 38, and it is submitted that nothing whatsoever in Martin or elsewhere in the prior art suggests that this be done.

Furthermore, it is submitted that the modification of the embodiment in FIG. 7 of Martin proposed by the Examiner would change the principle of operation of the embodiment in FIG. 7 of Martin, which is to stretch the metal foil 40' to establish a radial tension in the metal foil 40' by the clamping action of the clamping member 88 having the raised boss member 98 and the mask supporting frame 34 having the raised ridge 38 as shown in FIG. 7 of Martin. See column 10, lines 62-66; column 11, lines 5-13; and column 21, lines 23-30, of Martin. In contrast, in the modification of the embodiment in FIG. 7 of Martin proposed by the Examiner, it would be necessary to establish a radial tension in the metal foil 40' by using the edges of the metal foil 40' to stretch the metal foil 40' before the metal foil 40' is welded between the mask supporting frame 34 and the modified clamping member 88 without the raised boss member 98 and having the flat surface. See column 10, lines 23-30, and column 21, lines 13-23, of Martin. Accordingly, it is submitted the Examiner's proposed modification is improper. See MPEP 2143.01(VI) (MPEP page 2100-130).

Claim 17

It is submitted that Utsugi, Ito, and Martin do not disclose or suggest the feature "wherein the flat mask, the flat frame, and the flat cover mask are held together by welds" recited in dependent claim 17.

In explaining the rejection of claim 17, the Examiner takes the position that this feature of claim 17 is provided by the modification of the embodiment in FIG. 7 of Martin proposed by the Examiner discussed above in connection with claim 14. However, it is submitted that it would not have been obvious to modify the embodiment in FIG. 7 of Martin as proposed by the Examiner for the reasons discussed above in connection with claim 14.

Furthermore, it is submitted that Martin specifically teaches away from welding together the metal foil 40', the dimensionally stabilized mask supporting frame 34, and the clamping member 88 in FIG. 7 of Martin as proposed by the Examiner in the following passage in column 21, lines 18-30, of Martin (emphasis added):

> The above method [i.e., the embodiment shown in FIGS. 1-6 of Martin] can utilize the step of rigidly affixing the periphery of the metal foil mask 40' to the circumferentially extending surface by the step of welding the periphery of the metal foil mask 40' to the dimensionally stabilized mask supporting frame 34. In the alternative, a method can utilize the step of rigidly affixing the periphery of the metal foil mask 40' to the circumferentially extending surface by including the step of clamping the periphery of the metal foil mask 40' by a clamping member 88 against the dimensionally stabilized mask supporting frame 34, both illustrated in FIG. 7, to maintain a radial tension in the metal foil mask 40'.

Since Martin specifically teaches away from the modification of the embodiment in FIG. 7 of Martin proposed by the Examiner, it is submitted that the motivation for the modification proposed by the Examiner is improper. See MPEP 2145(X)(D) (MPEP pages 2100-160 and 2100-161).

The above arguments were also presented in the Amendment of February 1, 2007. In response to these arguments, the Examiner states as follows in the Final Office Action of February 27, 2007:

> The Applicant argues on pgs. 8-10 that Martin specifically teaches away from welding the metal foil, supporting frame, and the clamping member in FIG. 7. The Applicant specifically points

> out that Figs. 1-6 uses welding to affix the mask while Fig. 7 uses a step of clamping. However, the Applicant's argument is incorrect because the teaching of Martin does not rise to the level of teaching away. The alternative of clamping does not exclude welding. Martin does not teach or suggest that the combination of both affixing methods is inoperable.

The Examiner has apparently missed the point of the applicant's arguments. FIGS. 1-6 of Martin teach affixing the metal foil 40' to the mask supporting frame 34 using welding but without using the clamping member 88 which is used in FIG. 7 of Martin. FIG. 7 of Martin teaches affixing the metal foil 40' to the mask supporting frame 34 using the clamping member 88 but without using the welding which is used in FIGS. 1-6 of Martin. Thus, Martin discloses two alternatives—using welding or using the clamping member 88. Martin teaches that if welding is used, then the clamping member 88 is not used. Alternatively, Martin teaches that if the clamping member 88 is used, then welding is not used. It is in this sense that Martin specifically teaches away from using welding if the clamping member 88 is used. Thus, contrary to the Examiner's assertion that "[t]he alternative of clamping does not exclude welding," Martin specifically teaches that the alternative of clamping does in fact exclude welding. Since the modification of the embodiment in FIG. 7 of Martin proposed by the Examiner uses the clamping member 88, the Examiner's proposal to use welding in this modified embodiment is directly contrary to the specific teachings of Martin.

Furthermore, assuming *arguendo* that "Martin does not teach or suggest that the combination of both affixing methods is inoperable" as alleged by the Examiner, it is submitted that this does not provide the motivation required to support the rejection of claim 17 under 35 USC 103(a). Rather, the Examiner is required to identify something in Martin or elsewhere in the prior art that would have suggested to one of ordinary skill in the art the desirability of using both welding and the clamping member 88 to affix the metal foil 40' to the mask supporting frame 34. It is submitted that the Examiner has not done this, such that the Examiner has not established a *prima facie* case of obviousness under 35 USC 103(a) with respect to claim 17.

Claim 21

It is submitted that Utsugi, Ito, and Martin do not disclose or suggest the feature "wherein the flat mask is tensed with different tensions at different points on each of a plurality of sides of the flat mask" recited in dependent claim 21.

In explaining the rejection of claim 21, the Examiner states as follows:

> Claim 21: Martin teaches that the mask has substantially uniform tension (abstract). In other words, the tension of the mask may not be completely uniform. Thus, the tension of the mask may vary at different points.

The relevant part of the abstract of Martin referred to by the Examiner reads as follows (emphasis added):

> a securing device for rigidly affixing the periphery of the mask to the circumferentially extending surface with a substantially uniform tension applied to and in the plane of the mask and wherein the tension has a magnitude which establishes a stress on the mask during use which is less than the predetermined yield strength of the mask over a temperature range of a deposition process including operating temperatures of a deposition environment and being adapted to maintain a tension thereon of sufficient magnitude to keep the mask under tension independent of variations in tension due to the thermal expansion characteristics of the mask to dimensionally stabilize the thin film pattern at the operating temperatures of a deposition environment is shown.

It is submitted that Martin's mere disclosure of a "substantially uniform tension" would not have suggested to one of ordinary skill in the art the desirability of providing the feature "wherein the flat mask is tensed with different tensions at different points on each of a plurality of sides of the flat mask" recited in dependent claim 21 in the modification of the embodiment in FIG. 7 of Martin proposed by the Examiner. Nor has the Examiner identified anything whatsoever in Martin or elsewhere in the prior art that would have suggested the desirability of doing this. Accordingly, it is submitted that the Examiner has not established a *prima facie* case of obviousness under 35 USC 103(a) with respect to claim 21.

Conclusion—Rejection 1

For at least the foregoing reasons, it is respectfully requested that the rejection of claims 14-17 and 21 (i.e., claims 14, 17, and 21 discussed above and claims 15 and 16 depending from claim 14) under 35 USC 103(a) as being unpatentable over Utsugi in view of Ito and Martin be withdrawn.

Rejection 2

Claim 15 was rejected under 35 USC 103(a) as being unpatentable over Utsugi in view of Ito and Martin as applied to claim 14, and further in view of Yamada et al. (Yamada) (U.S. Patent Application Publication No. 2001/0019807). This rejection is respectfully traversed.

Notwithstanding the position taken by the Examiner, it is noted that claim 15 depends from claim 14, and it is submitted that claim 15 is patentable over Utsugi, Ito, Martin, and Yamada for at least the same reasons discussed above that claim 14 is patentable over Utsugi, Ito, and Martin.

For at least the foregoing reasons, it is respectively requested that that the rejection of claim 15 under 35 USC 103(a) as being unpatentable over Utsugi in view of Ito and Martin as applied to claim 14, and further in view of Yamada be withdrawn.

Rejection 3

Claims 18 and 19 were rejected under 35 USC 103(a) as being unpatentable over Utsugi in view of Ito and Martin as applied to claim 17, and further in view of Kitazume (U.S. Patent Application Publication No. 2002/0025406). This rejection is respectfully traversed.

It is submitted that Utsugi, Ito, Martin, and Kitazume do not disclose or suggest the feature "wherein the welds are dot welds" now recited in dependent claim 18 or the feature "wherein a welding pitch between the dot welds is 3 mm or less" now recited in claim 19 at least because it would not have been obvious to use welding in the modification of the embodiment in FIG. 7 of Martin proposed by the Examiner for the reasons discussed above in connection with claims 14 and 17.

For at least the foregoing reasons, it is respectfully requested that the rejection of claims 18 and 19 under 35 USC 103(a) as being as being unpatentable over Utsugi in view of Ito and Martin as applied to claim 17, and further in view of Kitazume be withdrawn.

Rejection 4

Claim 22 was rejected under 35 USC 103(a) as being unpatentable over Utsugi in view of Ito and Martin as applied to claim 14, and further in view of Fujimori et al. (Fujimori) (U.S. Patent Application Publication No. 2002/0102754). This rejection is respectfully traversed.

It is submitted that Utsugi, Ito, Martin, and Fujimori do not disclose or suggest the feature "wherein the flat frame and the flat cover mask are the only elements that touch the flat mask" recited in dependent claim 22.

In explaining the rejection of claim 22, the Examiner takes the position that the purpose of the registration pins 62 of the prealigned registration members 60 (which also include the adjusting means 64) shown in FIGS. 1 and 23 of Martin is to align with the registration members 162, 164, and 166 shown in FIGS. 11, 12, 22, and 23 of Martin so as to provide a proper alignment of the mask 40 with the substrate 150 as shown in FIG. 23 of Martin. The Examiner is of the opinion that "such adjusting means may come in contact with the mask when extended through the apertures (Fig. 7 [of Martin])." However, the Examiner is of the opinion that it would have been obvious to eliminate Martin's prealigned registration member 60 which include the registration pins 62 and the adjusting means 64 and align Martin's mask 40 with Martin's substrate 150 using the method described in paragraph [0066] of Fujimori. Specifically, the Examiner states as follows (emphasis added):

> However, Fujimori teaches that alignment marks on the mask and substrate with the use of a camera can be used for to make the proper alignment [0066]. Alignment marks 6 [in FIGS. 1-4] are simple indications on the surface of the frame of the mask and would not require any contact with the mask. Substitution of equivalents requires no express motivation (MPEP 2144.06). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to used alignment marks as opposed to the registration pins and registration members of Martin to align the mask to the substrate with a reasonable expectation of success because Fujimori teaches that alignment

> marks is an operable equivalent for aligning the mask to the substrate.

The Examiner is apparently relying on the following passage in MPEP 2144.06 (see MPEP page 2100-143) (emphasis by underlining added):

> An express suggestion to substitute one equivalent component or process for another is not necessary to render such substitution obvious. *In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982).

Thus, this passage of the MPEP states that an express suggestion to substitute one equivalent for another is not required to render such substitution obvious, rather than an express motivation as alleged by the Examiner.

Furthermore, in the decision of *In re Fout* referred to in this passage of the MPEP, the Court states as follows in pertinent part (see 213 USPQ 532 at 536):

> Express suggestion to substitute one equivalent for another need not be present to render such substitution obvious. In re Siebentritt, 54 CCPA 1083, 372 F.2d 566, 152 USPQ 618 (1967).

In the decision of *In re Siebentritt* referred to in this passage of *In re Fout*, the Court states as follows in pertinent part (see 152 USPQ 619):

> We see no need for explicit reference to a bonding process. The issue of obviousness is not determined by what the references expressly state but by what they would reasonably suggest to one of ordinary skill in the art.

Accordingly, it is submitted that the point of *In re Fout* and *In re Siebentritt* is that while an express suggestion to substitute one equivalent for another is not required to render such substitution obvious, there still must be something in the applied reference or references that would have suggested the desirability of the substitution to one of ordinary skill in the art. Here, it is submitted that the Examiner has not identified anything whatsoever in Martin and Fujimori or elsewhere in the prior art that would have suggested the desirability of the substitution proposed by the Examiner to one of ordinary skill in the art.

Furthermore, the Examiner's attention is directed to the following passage in MPEP 2144.06 (see MPEP page 2100-142):

> In order to rely on equivalence as a rationale supporting an obviousness rejection, the equivalency must be recognized in the prior art, and cannot be based on applicant's disclosure or the mere fact that the components at issue are functional or mechanical equivalents. (Citation omitted.)

Here, it is submitted that the Examiner has not identified anything whatsoever in Martin and Fujimori or elsewhere in the prior art that recognizes that the Martin's alignment method and Fujimori's alignment method are equivalents. Rather, the rejection appears to be based solely on the Examiner's opinion that these two alignment methods are functional or mechanical equivalents.

For at least the foregoing reasons, it is respectively requested that that the rejection of claim 22 under 35 USC 103(a) as being unpatentable over Utsugi in view of Ito and Martin as applied to claim 14, and further in view of Fujimori be withdrawn.

Conclusion

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with the filing of this paper, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

STEIN, MCEWEN & BUI, LLP

Date: 05/23/07

By: _____
Randall S. Svihla
Registration No. 56,273

1400 Eye St., NW
Suite 300
Washington, D.C. 20005
Telephone: (202) 216-9505
Facsimile: (202) 216-9510